

The New Rules of SPINAL EXTENSION

Prepare to have your mind blown—and your body on its way to a truly elastic, strong spine and torso.

By Shari Berkowitz • Edited by Amanda Altman



Oh, I thought I knew what spinal extension was. I even thought I was good at it. In Pilates, I was praised for how far I could press up in my Swan Preparation on the mat, or how far I could bend back in Swan on the Ladder Barrel. In dance, I could practically kick the back of my head with my foot in what often was referred to as the “Shari Flick!” However, the more I educated myself on the human body, the more I realized that I wasn’t doing spinal extension at all...and that nearly no one else was (or is), either.

What is spinal extension? In the world of biomechanics, spinal extension is returning your spine upright after being in spinal flexion (rounded forward). That means back to your “natural curves.” However, in Pilates, we speak of extension as a backbend. For the sake of this article, let’s use this Pilates interpretation. Flexion is where inward curves round

outward, and all curves match in degree of curvature relative to the natural outward curve of the thoracic (mid) spine. Therefore, extension is the direct opposite: where outward curves curve inward matching the degree of curvature relative to the natural inward curve of the lumbar spine (lower back).

In spinal extension, we know that we don’t want to “dump” or collapse in the lumbar spine, or do the same to our cervical spine (neck) by throwing our head back. The lumbar and cervical spines already curve inward; we must seek to stabilize these curves while reversing the thoracic curve. Many styles of Pilates strongly encourage “pulling the ribs in,” which then leaves us with an inability to move the thoracic spine. However, to reverse that thoracic curve and develop mobility, strength and elasticity of the thoracic spine, we must release the upper

abdominal connection—essentially releasing the rib cage, which frees the connected thoracic spine.

You must first develop an adaptable connection to your lower abdominals, which will put an appropriate lateral biomechanical tension on the thoracolumbar fascia (TLF)—the tissue responsible for distributing support and information throughout the lower back. Once that tension is established, all soft tissues that connect to the TLF can be more efficient. That is when we start to develop a sense of lifting and creating space between our low-back bones. That sense of lift is really the full-body soft-tissue tension pulling the bones apart in a dynamic balance referred to as biotensegrity. This is the most essential set of actions to develop, because only then can we establish an awareness of our pelvis and spine in space and proceed to exercises of spinal extension. Clearly, spinal extension is not a beginner set of actions. However, if we are wise about how we develop it, then bit by bit, we can draw our clients into a really strong, elastic spine and torso.

You see, appropriate spinal extension with this sort of elasticity of the thoracic spine is vital not just to our Pilates exercises, but in life. When you look up at the stars in the sky, it’s your thoracic spine that ought to be extending against your stable pelvis, lumbar and cervical spines. When you reach up into the overhead compartment on an airplane, throw a ball or serve in tennis, it’s the same thing. There must be elasticity and strength balanced with the ability to actually move your thoracic spine.

As you play with the following exercises, always seek your lower-abdominal connection, and work your pelvis in as close to a “neutral” position relative to your lumbar spine as you can to maintain that connection. With that, if you desire breathing cues, work with the natural actions in your body that make inhalation beneficial on spinal extension. Then, make sure you weave these exercises into your workout—noting the level for each—rather than attacking them all at once. After all, a wise man once told us that it’s all about balance. PS

MAT SWAN PREPARATION



PROP: none
LEVEL: beginner–intermediate

PURPOSE: teaches spinal extension; strengthens the torso and spinal muscles; develops elasticity of soft tissues
SETUP: Lie facedown, with your legs together, and palms on the mat just wider than shoulder width and slightly forward of your armpits.

1. Pull your lower abdominals in and up, and rotate your pelvis to neutral so that your

hip points (ASIS) and pubic bone are level. None of these three points should be touching the mat.

2. Press into your hands, and lift your head, neck and upper back.

3. Lower your upper back, neck and head. Do 5 reps.

EXTENDED DETAILS:

• When you press up, articulate through your upper thoracic spine. Your goal is to stabilize your

pelvis, lumbar and cervical spines—and reverse your thoracic spine. That means you’ll need to release your upper abdominals, and seek the muscles of your upper and mid-thoracic spine.

• Your hands and arms are helping you lift the weight of your upper body so that you can really reverse the curve of your upper and mid-thoracic spine. If you “think” or work the lower thoracic, you’ll find you won’t address the stiff part of the mid- to upper-thoracic spine.

• Go for a small range of motion. Even when you’re excellent at this, you’ll likely still maintain the base of your ribs lightly touching the mat.

MODIFICATION: Rather than setting up with your hands wider than your shoulders, stack your palms under your forehead. Keeping your palms and forehead attached, articulate up through your spine, bringing your hands/arms with you, then lower back to the mat.

PHOTOGRAPHY BY ALAN COX; MAKEUP BY JESSICA CHYNOWETH AND HAIR BY SARA COLLEY; TOP BY LORNA JANE; BOTTOMS BY ELISABETTA ROGANI; SPINE DIAGRAM BY BIGSTOCK

SINGLE-LEG KICKS

PROP: none
LEVEL: intermediate
PURPOSE: works torso/spinal and hamstring strength; develops hip and knee flexor elasticity; challenges spinal extension
SETUP: Same as Swan Preparation.

1. Repeat step 1 of Swan Preparation.

2. Bend one knee, then “kick” your seat 2 times.
 3. Switch legs, repeating step 2. Do 4–8 reps.

EXTENDED DETAILS:
 • It’s tempting to sink into an anterior tilt—i.e., “dump” into your lower

back. Keep your upper body lifted by working your thoracic extension.
 • As you bend your knee, work to maintain your neutral pelvis and natural lumbar curve.

MODIFICATION: Keep your hands stacked under your forehead and head down.



SWIMMING

PROP: none
LEVEL: intermediate
PURPOSE: enhances torso strength with an emphasis on the shoulder girdle muscles, spinal muscles, gluteus maximus, deep external rotators of the femur and hamstrings; stretches the front body, especially the anterior shoulder girdle, anterior torso and hip flexors; promotes coordination

SETUP: Lie facedown, with your arms by your ears, palms forward, and legs long, together and slightly lifted.

1. Repeat steps 1–2 of Swan Preparation, keeping your arms by your ears.
 2. Lift one arm and the opposite leg higher. Switch arms and legs. Do 10 slow sets.

EXTENDED DETAILS:
 • As you lift your arms and legs, remember the goal here: to focus on stabilizing your pelvis and lumbar spine against the reversal of your thoracic spine.

MODIFICATION: Divide the exercise into two separate components: First, work your torso in spinal extension and your arms

in the alternating shoulder extension. Then, focus on your lower body with your palms stacked under your forehead and head down.

ADVANCED: Do 20 sets with the same breath, rhythm and tempo of the Hundred.

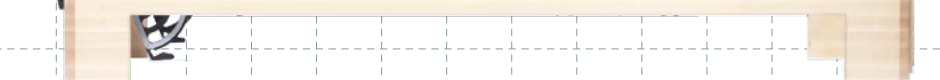
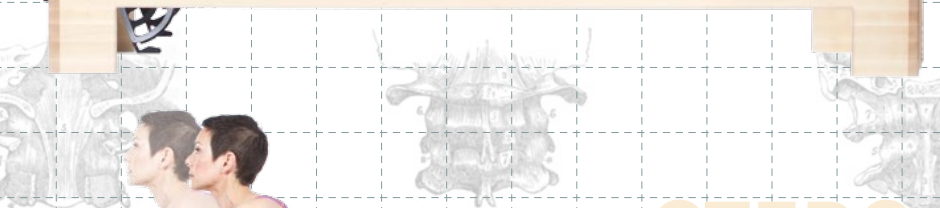


REFORMER

SWAN ON THE LONG BOX



Balanced Body Studio Reformer and Standard Sitting Box (\$3,345 and \$225, respectively; www.pilates.com)



PROP: Box
LEVEL: intermediate
SPRING SETTING: 1 heavy
PURPOSE: strengthens the torso and spinal muscles; develops elasticity of soft tissues
SETUP: Lie facedown on the Long Box, with the tip of your nose over the footbar, palms wider than shoulder width on the bar, and legs long and together.

1. Pull your lower abdominals in and up, and rotate your pelvis to neutral,

leveling off your hip points and pubic bone.

2. Press the carriage out, until your arms are straight.

3. Extend your thoracic spine.

4. Bend your elbows, staying in extension, as you resist the springs back in.

5. Articulate your spine and torso back to the Box. Do 3 reps, then

repeat the entire sequence, reversing the direction of the movement.

EXTENDED DETAILS:
 • As you extend your thoracic spine, remember that it’s an articulation from the top of the thoracic spine to the bottom and then in reverse.
 • Focus on stabilizing your pelvis and lumbar and cervical spines in tandem.
 • During extension, keep the base of your ribs on the Box to work your mid- to upper-thoracic spine.

As you play with the following exercises, always seek your lower-abdominal connection, and work your pelvis in as close to a “neutral” position relative to your lumbar spine as you can to maintain that connection.

PULL STRAPS I

PROP: Box
LEVEL: intermediate
SPRING SETTING: 1 heavy (footbar down)
PURPOSE: challenges shoulder girdle and torso/spinal strength (including spinal extension)
SETUP: Lie facedown on the Long Box facing the straps, with the top of your shoulder girdle at the edge of the Box. With your shoulder blades on your back, grab a hold of the straps, making sure your hands are just higher than the top of the Reformer frame. Reach your legs straight, together and level with your pelvis.

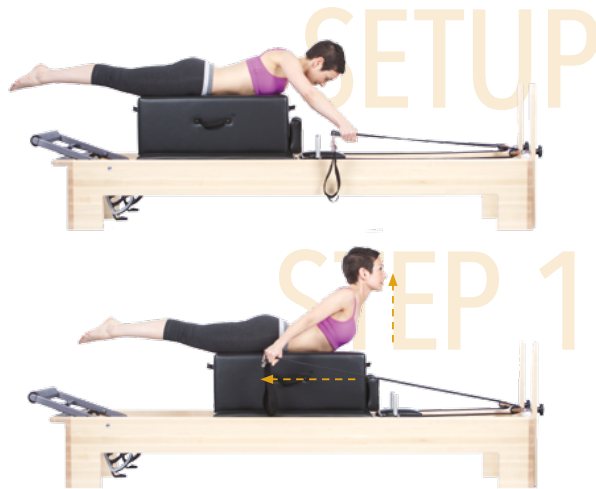
1. Repeat step 1 of Swan on the Long Box as you reach your straight arms back toward your hips and extend your spine. Hold the position while you continue inhaling.

2. Resist the springs as you return your arms forward and your spine to its natural curves. Do 3–5 reps.

EXTENDED DETAILS:

- Same as Swan on the Long Box.
- In your desire to reach your arms “further back,” it’s tempting to allow your shoulder blades to roll forward. Make sure you continue to roll them onto the back side of your body.

MODIFICATION: Skip the spinal extension until you’re confident with the shoulder girdle action.



BREASTSTROKE

PROP: Box
LEVEL: advanced
SPRING SETTING: 1 heavy
PURPOSE: develops torso/spinal and shoulder girdle strength; increases elasticity of soft tissues
SETUP: Facing the footbar, stand beside the back edge of the Long Box, holding onto the handles, with the straps near the Reformer frame. Push forward on the handles to move the carriage, then place your hands on the front corners of the Box. Slowly, with control, lie facedown on the Box with your kneecaps just off the edge. Position your hands wider and lower than your shoulders so that your elbows are no higher than the middle of your rib cage. Bend both knees to 90 degrees.

1. Repeat step 1 of Swan on the Long Box as you push against the handles to straighten your arms alongside your ears, pressing the carriage out while straightening your legs.

2. Keeping your arms by your ears, extend your thoracic spine.

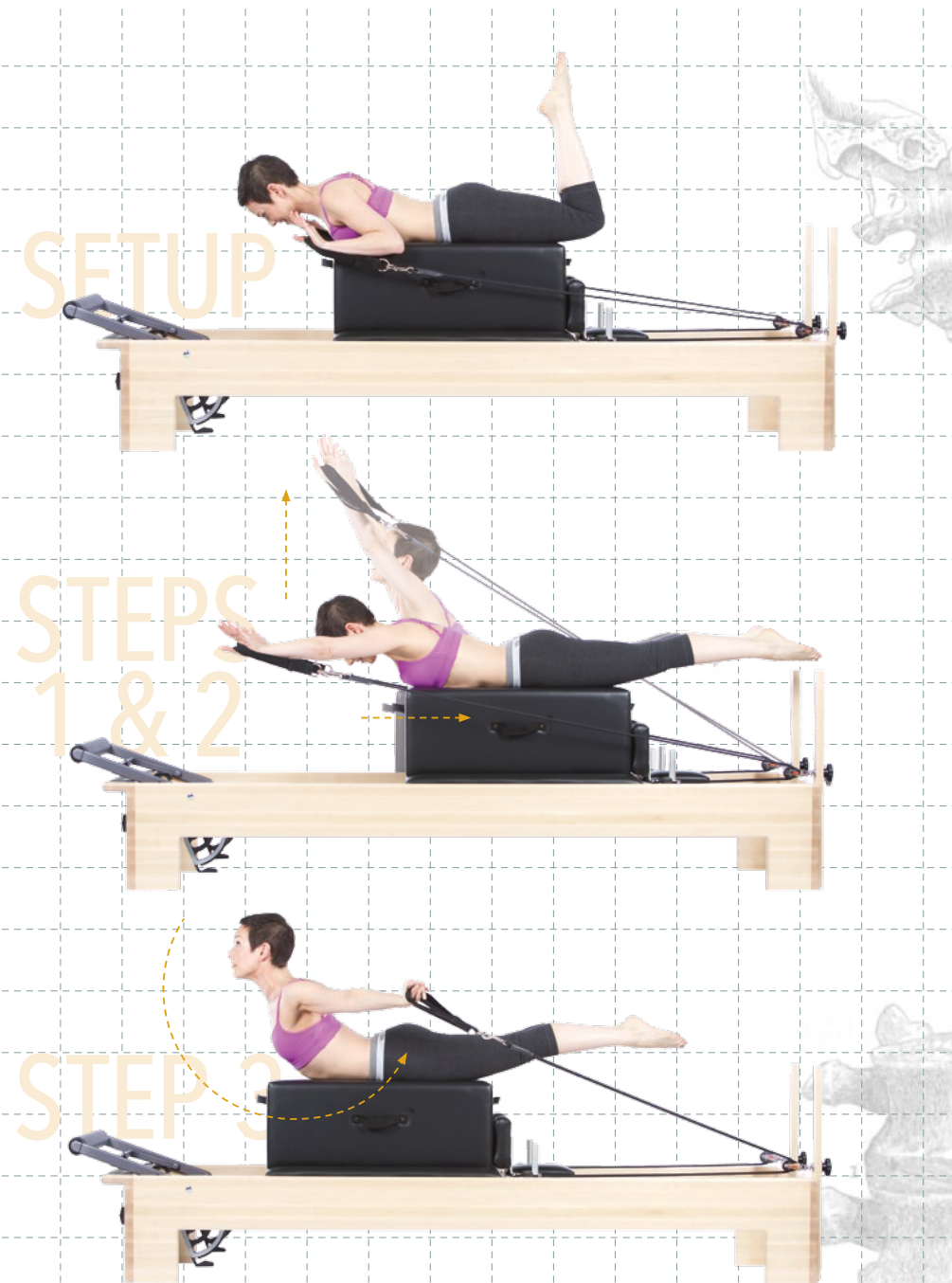
3. Circle your arms out to your sides and then to your hips while you stay uplifted in spinal extension.

4. Bend your elbows and knees as you articulate your spine back to its natural curves. Do 3 reps.

EXTENDED DETAILS: Same as Swan on the Long Box.

MODIFICATIONS: Ask a teacher to lightly press down on your legs just above your Achilles tendons to add stability when you extend your spine and circle your arms. When first doing this exercise, circle your arms in the front line of your body, with your hands reaching toward the front of your hips.

ADVANCED: As you progress, reach your arms toward the back line of your body with your shoulder blades on your back.



SEMI-CIRCLE

PROP: Box

LEVEL: intermediate–advanced

SPRING SETTING: 2 heavy

PURPOSE: works spinal extension while challenging the strength of the torso and legs; increases the elasticity of the soft tissues of the chest and anterior shoulder girdle

SETUP: Sit on the carriage, with your toes hip socket–width apart on the footbar. Press the heels of your hands against the shoulder blocks, fingers toward the sides. (If you're petite, make fists with your hands, and press them against the shoulder blocks, as shown.) Lift your pelvis and spine like you would for Shoulder Bridge

Preparation, heels high. Then, keeping the carriage in, slide or walk your torso forward until your arms are straight.

1. Keeping the carriage as stable as possible, articulate your spine into extension toward the springs. When you need to, lower your heels toward the frame.

2. Press into the heels of your feet and hands to press the carriage out.

3. Keeping the carriage stable and your heels down, articulate your spine back to its natural curves. Resist the springs in. Do 3 reps.

EXTENDED DETAILS:

- As you extend your thoracic spine, remember that it's an articulation from the top of the thoracic spine to the bottom and then in reverse.
- Feel for the edge of the carriage—it should be near your mid-thoracic spine—and use it as a tactile tool to help you actively articulate.
- Make sure that your pelvis and lumbar spine are relatively neutral. The goal is an articulation of the thoracic spine—not an anterior tilt of the pelvis or hyperextension of the lumbar spine.
- Work to keep the carriage stable as you articulate your spine.

SETUP



STEP 1



STEPS 2 & 3



FLOOR

STANDING FLEXION AND EXTENSION

SETUP & STEP 1



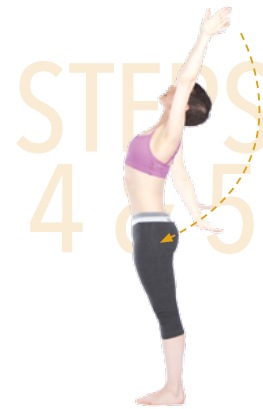
STEP 2



STEP 3



STEPS 4 & 5



PROP: none

LEVEL: intermediate

PURPOSE: promotes full-body coordination; enhances spinal/torso strength and elasticity of soft tissues; facilitates spinal and hip extension

SETUP: Stand tall with your feet hip socket–width apart and your arms by your sides.

1. Starting from the top of your head, roll your spine down, reaching your arms toward the floor.

2. Rotate your pelvis to neutral to the floor and articulate your spine into its natural curves parallel to the floor—into tabletop—while reaching your arms by your ears.

3. Rotate your pelvis to neutral toward the wall, and articulate your spine up to its natural curves as you lift your arms by your ears.

4. Turn the palms of your hands to your sides.

5. From the top of your head and spine, articulate your spine and hips into extension as you press your arms down to your sides in the front line of your body.

6. Articulate your spine, from the bottom to the top, back to its natural curves, keeping your arms down by your sides. Do 3 reps.



A Pilates teacher of teachers, **SHARI BERKOWITZ** focuses much of her work on understanding functional anatomy and biomechanics and its practical application to Pilates. Through her company, Shari Berkowitz & The Vertical Workshop, she researches the human body, writes The Pilates Teacher Blog, creates Pilates continuing-education products/tools, and teaches workshops and sessions. While Berkowitz's exercise vocabulary is classical Pilates, her tools, workshops and sessions are for everyone, regardless of Pilates background or preferred modality of exercise. Her teaching crosses all boundaries—well beyond her original training with Romana Kryzanowska and experience as a teacher trainer for Power Pilates. Her combined work in science and movement gives her a rich base from which to teach. Berkowitz sits on the board of trustees of The Stephen M. Levin Biotensegrity Archive, and is currently seeking her graduate degrees in ergonomics and biomechanics at NYU. For more information, visit www.theverticalworkshop.com.

EXTENDED DETAILS:

- When upright in spinal extension, make sure your pelvis is neutral relative to your natural lumbar curve.
- Focus on working your spinal extension through your thoracic spine.
- Support your natural lumbar and cervical curves.

MODIFICATION: If you have tight hamstrings, when you reach the tabletop position, bend your knees as much as needed to make sure you develop into your natural lumbar curve (and all curves).

ADVANCED: Do the exercise with your feet parallel and together.